



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/699,603	10/31/2003	Josh Judd	112-0139US	9954
29855 7590 12/30/2008 WONG, CABELLO, LUTSCH, RUTHERFORD & BRUCCULERI, L.L.P. 20333 SH 249 SUITE 600 HOUSTON, TX 77070				
			EXAMINER ADHAM MOHAMMAD SAJD	
			ART UNIT 2416	PAPER NUMBER
			MAIL DATE 12/30/2008	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/699,603

**Applicant(s)**

JUDD, JOSH

**Examiner**

MOHAMMAD S. ADHAMI

**Art Unit**

2416

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 September 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-72 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-72 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)
- 3) ☐ Information Disclosure Statement(s) (PTO/SG/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

- Applicant's appeal brief filed 9/29/2008 is acknowledged.
- Claims 1-72 are pending.

1. In view of the appeal brief filed on 9/29/2008, PROSECUTION IS HEREBY REOPENED. A new ground of rejection is set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below:

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1,8-13,18,19,26-31,36,37,44-49,54,55,62-67, and 72 rejected under 35 U.S.C. 103(a) as being unpatentable over Perlman (US 5,844,902) in view of Shah (US 7,111,105) and Suzuki (US App. 2002/0041594).

**Re claims 1,19,37 and 55:**

Perlman discloses *a first and second node device connected to a fabric* (Fig.1 ref.100 and 102 are node devices connected to a fabric).

Perlman further discloses *a first and second switch coupled* (Fig.1 ref.104,106,108,1001,112,114 where the bridges are switches).

Perlman further discloses *a plurality of ports configured to receive and transmit frames* (Fig.1 ref.104,106,108,1001,112,114 where the bridges contain ports that receive and transmit messages).

Perlman further discloses *a fabric manager coupled to the ports to obtain the received frame and provide a frame to be transmitted* (Abstract "Messages received from a first LAN are forwarded to a second LAN" where the bridge contains a fabric manager).

Perlman further discloses *the fabric manager configured to add information to the frame, the information including receive and transmit port*

*identity and switch identity* (Col.3 lines 31-33 “a header is attached to the message indicating the address of the source end system and the destination end system” and Col.5 lines 56-64 when a bridge receives an explorer message, the bridge modifies the message by attaching an indication of the LAN number and bridge number through which the message has passed, as well as any other desired information and then forwards the modified version to all connected LANs and Fig.2 ref. 126).

Perlman further discloses *the fabric manager adding information about each of the plurality of switches units and interconnections when a frame traverses multiple switches* (Col.3 lines 31-33 “a header is attached to the message indicating the address of the source end system and the destination end system” and Col.5 lines 56-64 when a bridge receives an explorer message, the bridge modifies the message by attaching an indication of the LAN number and bridge number through which the message has passed, as well as any other desired information where information about the switch and ports is also information about the switching units and Fig.2 ref.126).

Perlman does not explicitly disclose *a plurality of switching units coupled to the ports so that a frame traverses multiple switching units in the switch*.

Shah discloses *a plurality of switching units coupled to the ports so that a frame traverses multiple switching units in the switch* (Fig.4 ref.601 is a node containing multiple bus bridges – where the node is a switch and the bus bridges contain switching units).

Perlman and Shah are analogous because they both pertain to data communications.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Perlman to include switching units coupled to ports so that a frame traverses multiple switching units in a switch as taught by Shah in order to provide central control and connect network devices to a network.

Perlman does not explicitly disclose *adding information to a frame as it traverses multiple switching units*.

Suzuki discloses *adding information to a frame as it traverses multiple switching units* (Fig.3 and Para.[0039] Each bus bridge includes a switching unit connected between ports A and B. The packet switching unit translates the channel identifier contained in the header and forwards the header-translated multicast packet - where forwarding the header translation is adding information).

Perlman and Suzuki are analogous because they both pertain to network communications.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Perlman to include adding information to a frame as it traverses multiple switching units as taught by Suzuki in order to gather path traversal information.

**Re claims 8,9,26,27,44,45,62, and 63:**

Perlman discloses *the fabric manager adding information to the frame when the frame is traveling from the original source to the original destination*

*and from the original destination to the original source (Col.5 lines 56-62 when a bridge receives an explorer message, the bridge modifies the message by attaching an indication of the LAN number and bridge number through which the message has passed, as well as any other desired information).*

**Re claims 10,28,46 and 64:**

*Perlman discloses a node device connected to a port and the fabric manager transmitting the frame to the node device (Fig.1 ref.100 and 102 are node devices connected to ports and Abstract "Messages received from a first LAN are forwarded to a second LAN" where the bridge contains a fabric manager).*

**Re claims 11,12,29,30,47,48,65, and 66:**

*Perlman discloses the fabric manager selecting a port to transmit the frame based on source routing information contained in the frame (Col.3 lines 31-33 "a header is attached to the message indicating the address of the source end system and the destination end system" and Col.3 lines 54-55 "Scheme which use this technique are known as "source routing bridges" and Col.5 lines 56-64 when a bridge receives an explorer message, the bridge modifies the message by attaching an indication of the LAN number and bridge number through which the message has passed, as well as any other desired information - where information about the switch and ports is also information about the switching units).*

**Re claims 13,31,49, and 67:**

Perlman discloses *using normal routing rules if the source routing information does not indicate a device directly connected to the switch* (Col.3 lines 38-40 "Each end system on the LAN, upon receiving this message, determines if its address is Y, and if so, the end system reads the message" and Col.3 lines 63-65 Source routed messages are forwarded by the bridges from one LAN to the next - where if the message is not read, then it is forwarded on as disclosed above using normal routing rules).

**Re claims 18,36,54, and 72:**

Perlman discloses *determining if a switch is the source of the frame and if so, capturing the frame and not further transmitting it* (Col.3 lines 38-40 "Each end system on the LAN, upon receiving this message, determines if its address is Y, and if so, the end system reads the message" otherwise the messages is forwarded on as disclosed above using normal routing rules where once a message is returned to the source, it is captured by that source and not further transmitted).

3. Claim 2-7,20-25,38-43, and 56-61 (as best understood) are rejected under 35 U.S.C. 103(a) as being unpatentable over Perlman in view of Shah and Suzuki as applied to claims 1,19,37,and 55 above, and further in view of Soumiya (US 6,671,257).

**Re claims 2-7,20-25,38-43, and 56-61:**

As discussed above, Perlman meets all the limitations of the parent claim.



Perlman further discloses *information including the link cost of a link* (Col.5 lines 40-43 "The explorers may also accumulate other data, such as the maximum packet size along the path followed or the "cost" (expediency) of those paths").

Perlman does not explicitly disclose the information including transmit and receive rates based on a first defined period and a second defined period that is greater than the first defined period and the number of frames and words transmitted and received.

Soumiya discloses the information including transmit and receive rates based on a first defined period and a second defined period that is greater than the first defined period and the number of frames and words transmitted and received (Fig.26 ref. 8~9 is a rate field, Col.26 lines 21-23 the rate changing unit may change the explicit rate that the rate calculating unit calculates at a predetermined ratio and Col.35 lines 21-36 the prolongment of the observation period means that an interval between ER calculation times becomes longer. The capability for calculating the ER in an observation period which is shorter than a specified observation period and Col.7 lines 27-28 "an arrived cell number counter for counting a number of arrived cells in correspondence with an output channel" where calculating the transmission rate also contains information about the amount of frames and words transmitted).

Perlman and Soumiya are analogous because they both pertain to network communications.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Perlman to include rate information as taught by Soumiya in order to more efficiently choose a path for transmission and to minimize congestion.

4. Claims 14,16,32,34,50,52,68, and 70 (as best understood) are rejected under 35 U.S.C. 103(a) as being unpatentable over Perlman in view of Shah and Suzuki as applied to claims 1,11,19,29,37,47,55, and 65 above, and further in view of Fredericks (US 6,347,334).

**Re claims 14,16,32,34,50,52,68, and 70:**

As discussed above, Perlman meets all the limitations of the parent claim.

Perlman does not explicitly disclose *a fibre channel switch, a frame addressed to a well known address, determining the true destination address by retrieving data from the payload, and the frame being an extended link service frame.*

Fredericks discloses *a fibre channel switch, a frame addressed to a well known address, determining the true destination address by retrieving data from the payload, and the frame being an extended link service frame* (Col.1 lines 29-30 “The Fibre channel switch” and Col.6 lines 29-31 “the RNID ELS message is sent to the Fabric Controller at the address hex “FFFFFFD” as is well known” and Table 1 and Col.5 lines 45-46 “The first word in the payload specifies the Command Code” and Col.5 lines 9-10 the payload of the accept message includes node identification data).

Perlman and Fredericks are analogous because they both pertain to network communications.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Perlman to include a fibre channel switch and ELS message as taught by Fredericks in order to use a standard network setup and standard and well-known messaging.

5. Claims 15,33,51, and 69 (as best understood) are rejected under 35 U.S.C. 103(a) as being unpatentable over Perlman in view of Shah and Suzuki as applied to claims 1,19,37,and 55 above, and further in view of Lee (US App. 2003/0099194).

**Re claims 15,33,51, and 69:**

As discussed above, Perlman meets all the limitations of the parent claim.

Perlman does not explicitly disclose *transmitting frames over a plurality of equal cost routes*.

Lee discloses *transmitting frames over a plurality of equal cost routes* (Para.[0005] "partially use a number of shortest paths having the same cost, that is, an equal cost multipath").

Perlman and Lee are analogous because they both pertain to network communications.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Perlman to transmit data over equal routes as taught by Lee in order to balance the load on the paths and reduce congestion.

6. Claims 17,35,53, and 71 (as best understood) are rejected under 35 U.S.C. 103(a) as being unpatentable over Perlman in view of Shah and Suzuki as applied to claims 1,19,37,and 55 above, and further in view of Hongal (US App. 2005/0053006).

**Re claims 17,35,53, and 71:**

As discussed above, Perlman meets all the limitations of the parent claim.

Perlman does not explicitly disclose *if a switch is the original destination of a frame, then modifying the frame to return it to the original source.*

Hongal discloses *if a switch is the original destination of a frame, then modifying the frame to return it to the original source* (Para.[0030] "The source MAX address is set to the system MAC address of the target network node (i.e. the target MAC address)" and "the destination MAC address in the frame's header could be set to the originator MAC address").

Perlman and Hongal are analogous because they both pertain to network communications.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Perlman to include modifying the frame to return to the original source as taught by Hongal in order to return information about a path to the source and therefore allow the source to choose an optimal path.

***Response to Arguments***

2. Applicant's arguments with respect to claims 1,19,37, and 55 have been considered but are moot in view of the new ground(s) of rejection.

7. Applicant's arguments filed 9/29/2008 have been fully considered but they are not persuasive.

In the remarks, Applicant contends Shah's multi-level bus-bridge arrangement is not similar to a multi-tier switch.

The Examiner respectfully disagrees. The multi-tier bus bridge arrangement is similar to a multi-tier switch because both are used to transfer packets. Furthermore, Suzuki explicitly discloses bus bridges containing switching units (Fig.3).

In response to applicant's argument that Perlman and Shah are nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, both references relate to data transmission.

In the remarks on pgs.13-15, Applicant contends the messages in Perlman do not have the required additional information added to them and that they do not use normal routing rules.

The Examiner respectfully disagrees. A header is attached to the message indicating the source and destination address (Perlman Col.3 lines 31-

33 and Col.5 lines 56-62 the bridges modifies the message by attaching an indication of the LAN number and the bridge number through which the message has passed, as well as any other desired information and Fig.2 ref.126 – modify message by attaching an indication of the LAN # and bridge # and any other desired information). The above disclosure shows other types of information that can entered into an explorer packet. The messages are also related to the explorer messages and “normal routing rules” are used (Col.5 lines 29-54 the messages are used to route packets and the explorer messages are used to discover the routes. Based on the discovered routes, a route and selected and used.). Perlman's disclosure of routing rules reads on the applicants limitation of “normal routing rules.” The routing rules for the explorer messages are “normal routing rules” for the explorer messages.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., normal routing rules require knowing the route) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

In the remarks, Applicant contends the citation of Perlman for claims 13,31,49, and 67 does not relate to the claims.

The Examiner respectfully disagrees. The cited portions of Perlman (Col.3 lines 38-40 "Each end system on the LAN, upon receiving this message, determines if its address is Y, and if so, the end system reads the message" otherwise the messages is forwarded on as disclosed above using normal routing rules) show that if the message belongs to the end system, it is not further forwarded. If the message does not indicate the end system, then the message is forwarded using "normal routing rules". This is also disclosed in Perlman (Col.3 lines 63-65 Source routed messages are forwarded by the bridges from one LAN to the next).

In the remarks on pg.16-17, Applicant contends the combination of Perlman and Frederick is hindsight.

The Examiner respectfully disagrees. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

In the remarks on pg.16, Applicant contends Frederick does not mention anything about retrieving the true destination address from the frame payload.

The Examiner respectfully disagrees. Frederick does mention retrieving the "true destination address" from the frame payload (Col.6 lines 29-31 "the RNID ELS message is sent to the Fabric Controller at the address hex "FFFFFD" as is well known" and Table 1 and Col.5 lines 45-46 "The first word in the payload specifies the Command Code" and Col.5 lines 9-10 the payload of the accept message includes node identification data). Table 1 shows the destination ID that is retrieved from the payload and Col.5 lines 9-10 further state the payload contains address information.

In the remarks on pg.18, Applicant contends Lee does not teach sending the frame over all of the equal cost routes.

The Examiner respectfully disagrees. Lee discloses *transmitting frames over a plurality of equal cost routes* (Para.[0005] "partially use a number of shortest paths having the same cost, that is, an equal cost multipath"). The frames is transmitted over all of the equal cost paths that are included in its route. The number of shortest paths used is not limited in Lee to exclude all the shortest paths having the same cost.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MOHAMMAD S. ADHAMI whose telephone number is (571)272-8615. The examiner can normally be reached on Monday-Friday 8-4:30.



If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Firmin Backer can be reached on (571)272-6703. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. S. A./  
Examiner, Art Unit 2416

/FIRMIN BACKER/  
Supervisory Patent Examiner, Art Unit 2416